

1 NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

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11 Commonwealth Club of California

12 November 18, 1982

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14 Meeting held at:
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16 Park Center Plaza
17 San Jose, California

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1 MS. JOHNSON: Welcome to this special luncheon
2 of the Commonwealth Club of California. I am Judith
3 Johnson acting quarterly Chair. I welcome you and I'd
4 also like to welcome any guests who are attending the
5 club luncheon for the first time. If we have any of
6 you in the audience would you mind standing so that we
7 could officially welcome you?

8 For the first time --

9 (Applause)

10 I'd like to call your attention to the
11 upcoming events. Tomorrow, November 19, Dr. Edward
12 Saed, a member of the Palestine National Council, will
13 address a club luncheon on the question of Palestine.
14 On Wednesday, November 24, the day before Thanksgiving,
15 David Ramine, Counsel General of Isreal will speak on
16 Trends and Prospects in the Middle East.

17 Working for world peace on a people to people
18 basis will be the topic of Dr. Stanley McAfferty, past
19 president of Rotary International on Friday, December 3.
20 I call your attention to the fact that all of these
21 events are advanced ticket luncheons. Tickets will be
22 available for sale concluding today's meeting in the
23 back of the room or they may be obtained to the
24 club's offices.

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1 inside page of the Commonwealth that you received in
2 the mail or on the reverse side of the blue sheets on
3 your table for club study section meetings.

4 Our guest speaker today is one of the rare
5 Government administrators. Perhaps the only one other
6 than the head of the IRS who can claim to bring money
7 into Washington, D. C. As some of you may have read
8 a vehicle belonging to the agency he heads completed
9 this past Tuesday a most efficient delivery in space.
10 Collected a pay check of \$17 million from private
11 business and returned to earth on time and with full
12 safety looking for more work.

13 As a taxpayer, that's the way I like to see
14 my government run. And, I think others must like it
15 too. Our speaker has had a distinguished career in
16 both government and in business. On the public side,
17 he served with NASA in 1968 and 1969 as Associate
18 Administrator, Office of Advanced Research and
19 Technology.

20 Later he served for four years as
21 Under Secretary of Transportation. In the business
22 world, he has held progressively responsible
23 positions with Westinghouse Electric and with Suma
24 Corporation. Before assuming his present duties he
25 held the position of Executive Vice President and

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Director of General Dynamics Corporation. A graduate
of the United States Naval Academy and the Harvard
Graduate School of Business Administration he holds
honorary degrees from five colleges and universities.

Ladies and Gentlemen, please join me in
welcoming today's guest speaker the Administrator
of the National Aeronautics and Space Administration,
Mr. James Beggs.

(Applause)
done in understanding our own small planet.

MR. BEGGS: Thank you very much, Judy.
My colleagues here at the desk, ladies and gentlemen,
I'm very delighted to be here. It's a very great
pleasure to appear before the Commonwealth Club of
California. It has been a pivotal period to
come all this far west. And, it is my pleasure to
be able to talk about our program because we're
proud of it and we think that most of America, in
fact, I like to believe all of America is equally
proud of America's space and aeronautics program.

This club has contributed much to public
understanding and we're hopeful that -- you will
continue to maintain your interest in our program.
And, our desire to share with you the results of our
program is a part, I think, of the broad understanding
of what it is we are about.

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1 We have come a long way in 24 years, and
2 that's how old NASA is, it was 24 years old in October.
3 From that earlier Explorer I which was the first small
4 satellite we put up in response to Sputnik through
5 the Mercury, Gemini, Appolo programs to the space
6 shuttle, we've done truly splendid, magnificent
7 things. The 12 men that we landed on the moon, the
8 exploration of the planets, the scientific work we've
9 done in understanding our own small planet, have I
10 think, heightened our understanding of what it is
11 that we are involved in in the cosmos and what it is
12 that maybe we intend to do with ourselves in the
13 distant future.

14 And, we should
15 It has been a pivotal period in human
16 affairs, the world as we all know, is very unsettled.
17 We've learned, however, that cooperation is better
18 than confrontation and we do a lot of cooperation
19 on this program. And, I have a little more to say
20 about that.

21 As we leave the planet and start to --
22 gain access to the infinite resources and infinite
23 potential of the universe, I think we have -- a
24 problem in assuring that everyone understands the
25 large potential the space has and the great move that
we've made in understanding the -- and the great

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1 uplift that I believe we've given to the human spirit.
2 Just a couple days ago, we brought the shuttle back
3 off from its fifth mission and we have progressed a
4 long way in five flights. If this was a commercial
5 airplane we would have flown it at least 100 times
6 before we put it into productive service.

7 On the fifth flight, we're very proud that
8 we did earn that money. We're still not covering our
9 cost, I should make that very clear -- but we are
10 making a lot of progress. The success we've enjoyed,
11 I think, is due to a number of things it's of course
12 due to the fact that the American public have kept
13 faith with us for 25 years.

14 It is true that true Democrat and Republican
15 administration, they have continued to fund the
16 program not as much as we'd like but -- continue to
17 stand by. And, it is also a tribute to the very fine
18 group of men and women who make up NASA. There are
19 21,000 of them today. And, the very large supporting
20 cast in industry on the universities which probably
21 add another 110 or 120,000 people who are at work on
22 the space program.

23 Today, we stand on the threshold of a new
24 and most promising era. And, it's made possible by
25 the shuttle because the shuttle is a very flexible

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1 and very convenient way to go into space. Let me talk
2 a little bit about the how that we got to this point.
3 And, then I'll talk a little bit about the why we
4 decided to get to this point.

5 I think everyone in this room can probably
6 remember the -- early days of the program, the
7 program, of course, begins with Sputnik and we learned
8 that the Soviet Union had moved very quickly to exploit
9 space. It shocked us into action, it shocked us into
10 some other realizations that we have started to fall
11 behind in our educational -- responsibilities to our
12 young people. We were not keeping up the level of
13 performance with science and technology that we should.

14 And, we showed the world and it showed us
15 in a very dramatic manner that we could fall behind
16 very quickly if we do not continue to progress. The
17 Soviet technology of that time was moving ahead of
18 us clearly. And, we responded in a very forthright
19 and quick fashion. Sputnik was a splendid achievement.
20 And, we decided to catch up quickly and we did.

21 The Apollo program commitment enabled us to
22 move very quickly by them. And, it was only a few
23 short years later in 196 -- from about 1967 on that
24 we were well ahead of them. And, of course, with our
25 landing on the moon we moved by them in a very

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1 dramatic way. It, I think, restored pride in this
2 country in a way that no other program could have done.
3 The space program did so many things in restoring the
4 sense that America still had the ability if it wanted
5 to, to do absolutely splendid things in high technology.

6 And, we always have believed that we were
7 the leading preeminent technological nation. It gave
8 us heros when we needed heroes. And, it gave us a
9 growing awareness of the benefits that accrue from
10 continuing to explore the unknown, to continue to
11 push out on the edges of the frontier The space
12 frontier has been called the endless frontier and
13 indeed it is. And, it's the frontier that has given
14 this nation its incentives and its motivation ever
15 since the beginning of our history.

16 Presidents very rarely inquire about the
17 mechanics of space flight. They rarely tell us, ask
18 us what's the most efficient maneuver to change
19 orbital altitudes or to deal with the thousands of
20 things that can go wrong in orbit. There aren't
21 many members of Congress, as a matter of fact, who
22 understand much about this technology of the space
23 program.

24 I find very few of them who even ask me
25 questions about what it is we're about from the

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1 technology. And, there are a few, relatively few
2 members of the public although we have found about
3 10 to 15 percent of the public are very knowledgeable
4 about the program but the vast majority of the public
5 don't really wonder very hard on what the solar wind
6 is made up, or why the temperature of the universe
7 is particularly important in understanding the
8 origin of the universe.

9 But, it is not important that they understand
10 that. The important thing is that they believe that
11 what we are doing is important. And, indeed they
12 have, they have kept the faith with us for 24 years
13 and they continue to do so. They go forward, both the
14 public, the Congress and the Administration with a
15 deep belief in the purpose and -- the faith in the
16 ability of the people who work, or are working this
17 program that we will do what we say and do it
18 successfully.

19 And, we feel that we have kept that faith
20 and it is exemplified in the motto of this last flight.
21 And, when they held up that sign and made that state-
22 ment on the radio we deliver they said. And, that's
23 the way we feel about the program.

24 The second motivating force behind the
25 program has been the national and international

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1 environment in which it is taking place. We are
2 beset as we all know in this room, by foreign
3 competition. We used to be preeminent in a number of
4 areas where we had found that other nations are moving
5 by us quickly. The plain facts are that the things
6 that we do best are where we apply our high technology
7 the best..

8 There is a growing belief, I think, that
9 there needs to be a central focus for research and
10 technology in this country. And, I believe the space
11 program provides that focus. And, I'll get back to
12 that point in just a few minutes.

13 Worldwide as well, there is a growing concern
14 about the earth's environment. And, how man is
15 influencing it and there is an increasing growing
16 awareness of the complexities of international
17 relationships in our space, can be used to bring
18 mankind together.

19 The third factor that powers the space
20 program is the remarkable progress in the technologies
21 necessary to move forward in space. Because we need
22 to push at the edge of the art, the edge of technology,
23 we make rapid advances possible. And, they have come
24 in leaps and bounds in the last 20 years. Immediately
25 coming to mind, of course, is solid state electronics

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1 and the computer sciences. But, also medical
2 electronics and monitoring equipment which we kind of
3 take for granted these days.

4 The fall out into many other industries
5 which we take for granted is benefitted significantly.--
6 benefits significantly those industries and programs.
7 These technical programs build on each other and they
8 draw on each other constantly as we push and benefit
9 from the advanced technology we force them to develop
10 their art even further.
11 better.

12 A strong case can be made that technological
13 progress to a large extent has been supported and
14 contributed to by the progress of the space program
15 as well as a number of the other advance research and
16 development programs we've conducted in the last 20
17 years.

18 It's through the introduction of visual
19 technology that we're able to do what we can do with
20 the shuttle system. If we didn't have that, we
21 couldn't fly the shuttle as a matter of fact because
22 we are flying through a digital flight control system.
23 The digital systems allow us to conduct our simulators,
24 to train our astronauts, they provide the back bone
25 of all of the systems that we use in controlling the
shuttle in flight.

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1 And, we continue to push that technology.

2 There are other areas of high technology that have
3 been pushed by the shuttle program as well as our other
4 space activities, composite material, ceramic materials,
5 glass fibres are replacing wire now in many of our
6 avionic systems. We are doing increasingly large
7 amounts of work in high temperature materials. The
8 silicon chip technology and further developments of
9 high circuit density and capability are all things that
10 we need and we push hard on the industry to make even
11 better.

12 The fourth ingredient that has propelled the
13 United States space program forward for more than
14 two decades is, however, the most important. And, it
15 will lead me into the whys of what we do. There is
16 a growing public awareness and recognition of the
17 utility that has been accomplished and what can be
18 accomplished in the future.

19 We have made incredible strides and indeed
20 we take for granted what exist for today from our
21 space research. We get up in the morning we turn on
22 the television, we see pictures from all over the world
23 in real time. And, they come to us by satellite
24 communications, the fastest growing industry in the
25 world today.

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1 We look at weather maps and we get weather
2 forecast which are made much more accurate at long
3 range by means of the meteorological satellites. We
4 navigate across the country. I heard an amusing
5 comment coming across the country this time. The
6 lady said on landing, do you mean you could fly this
7 airliner all the way across the country and find
8 Los Angeles in the dark and you can't find my bag?

9 (Laughter)

10 Space age technology -- but down on --
11 locating bags.

12 National Security Verification System, our
13 surveillance systems enable us to insure that the
14 arms control agreements we sign with the Soviets
15 are effectively monitored and observed. The -- such
16 things as assessing crop damage and crop yields,
17 surveying water resources and land resources, the
18 list goes on and on. One of the ones that pleases me
19 very much we have a -- an international agreement with
20 the Soviets, the Europeans and the Canadians to launch
21 a search and rescue system.

22 There will be 12 satellites eventually in
23 orbit and we will be able to locate any ship or aircraft
24 in distress at any point on the globe. The first of
25 those satellites happened to be the Soviet satellite

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1 which went up a few months ago. And, because it is
2 in orbit we have been able to locate four -- accidents
3 three of them aircraft and one ship which have
4 rescued seven people who would not have been rescued
5 had that system not been in operation. Now, when it
6 is fully operational all you will require is a relative
7 low cost beacon or transmitter to tie into it. And,
8 we will be able to locate you at any time -- at any
9 point on the globe.

10 The use of space and its utility and the
11 fact that we have generated new industries from it
12 has attracted the attention of a number of other
13 countries and they are in the field, there are no
14 longer just two countries competing in the space
15 race there is a whole host of others.

16 The Europeans are coming fast with the
17 European space agency which includes almost all of the
18 European nations, the French, the Italians, the
19 English, the West Germans, are all very active and
20 their budgets are increasing significantly each year.
21 The Japanese are coming fast and they too are
22 increasing their budget in space. And, even the
23 Chinese, the People's Republic is moving quickly to
24 become a space fairing nation.

25 There is a good side to that -- we welcome

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1 the competition. It sharpens our program as well and
2 makes us think about what we ought to do in order to
3 maintain our competitive edge. But, in addition to
4 that it provides many opportunities to cooperate
5 because space is expensive, they find that it is
6 better to cooperate than to compete in every program
7 and the cooperative aspects of it -- give benefits
8 to us to a significant degree as well as benefits to
9 them. It's one of those things where both backs are
10 scratched.

11 I mentioned the Canada arm in my little
12 slide show. Europeans provided a space laboratory
13 which will fly with the shuttle, first flight will be
14 September of next year. They put \$1 billion in
15 developing that space laboratory and gave it to us
16 free of charge when it was delivered down at Kennedy.
17 Here several months ago, one of my German friends
18 came over to me and he said do you realize that this
19 is the biggest gift from the Europeans that they have
20 sent to you since the Statue of Liberty.

21 And, I said, we thank you very much.

22 (Laughter)

23 And, we do indeed and it works well.

24 In the decade of the '80's we will find this
25 challenge of the new frontier continuing to open before

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1 us because we now have the means of exploring and
2 exploiting in a way that is truly remarkable, flexible
3 and advanced. The shuttle system provides efficient
4 routine access to lower earth orbit and will enable
5 us to construct large structures in low earth orbit.
6 And, so we intend to move from this -- to a period
7 of permanent presence in space and to an exploration
8 activity which we believe will never end.

9 I'm often asked why we do it. And, there
10 are many particularly in the younger generation who
11 in their very forthright and brash way say -- you
12 know, why are you throwing all that money out into
13 outer space when we have so many problems on earth.
14 I would like to cite three reasons which I think
15 encompass the whole thing.

16 First, I mentioned the economic benefits
17 -- our studies indicate that the economic benefits
18 alone far outweigh the costs. As a matter of fact,
19 the studies that we have done show that the return
20 to the United States from the expenditure we've made
21 is in the order of 20 to 30 percent per year. The
22 new industries, the fall out in technology, the
23 new products, the new jobs created, the technology,
24 the innovation all are a large return.

25 And, I might add that what we spend, while

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1 it is a substantial sum of money \$6 billion in 1982.
2 And, it will be somewhat more than that in 1983 -- is
3 -- in 1982 was about 8/10ths of 1 percent of the
4 Federal budget. So, about one cent of your tax dollar,
5 a little less than one cent of your tax dollar goes to
6 this program and that's been true over the history of
7 the program -- about 1 percent over the history of the
8 program -- that, of the Federal budget that has gone
9 into the program. The technology base has
10 enabled. The high technology base built from that
11 effort and the unique testing facilities which are
12 clearly a national asset are used by industry at large
13 to develop products and we are finding -- and it is
14 our hope that we can increase the use of these. I'm
15 facilities by the non aerospace industry. They are
16 beginning to come to us more and more. We certainly
17 hope that they will use our facilities and use our
18 research as much as possible to sharpen their
19 competitive skills. Our society can do.

20 The second reason, of course, is the
21 stimulation that it gives broadly to our civilization.
22 It stimulates our minds, it stimulates our imagination,
23 it adds spice to our life in a way that I think no
24 other program can. And, in great moments, I believe,
25 it stirs our souls. We are a pioneer nation, we

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1 developed and built our country largely because of the
2 peoples basic urge to continue to push out to the
3 edges of the unknown.

4 All through the history we have distained
5 the beaten path and taken the way of -- through the
6 unbeaten trail. It's a native American trait, I
7 believe we still want to do that. And, if we do
8 we'll continue to move ahead as a great nation. In
9 the past, the research and technology base has
10 enabled us to do great things. I've mentioned a
11 number of them today. But tere are still many, many
12 magnificent things to do in the future.

13 As they say in show biz, you ain't seen
14 nothin yet if we continue to pursue this. And, I'm
15 confident that we will continue to do it. The
16 third and final reason is perhaps the most important.
17 The program of exploration of space and aeronautics
18 provides a stimulus to our young people that no
19 other program that we do in our society can do.
20 It encourages them to move into the sciences and
21 engineering and we need that, these days -- to give
22 you one example, last year we graduated 60,000
23 engineers in this country.

24 The Japanese with half our population
25 graduated 75,000. And, if you worry about that,

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1 consider the further statistics -- we graduated seven
2 times more accountants than they did and twenty-one
3 times more lawyers.

4 (Laughter)

5 We must continue to restock the pond if we
6 expect to move ahead in science and technology. And,
7 I believe that's most important for the future of this
8 country. But, even if those young people don't go
9 into the sciences or the engineering disciplines,
10 the program stretches their minds and it convinces
11 them if they want to challenge the impossible or the
12 difficult that you can do it, and you can succeed if
13 you have the will.

14 Jim Mitchner, who is a great friend of the
15 space program, he sits on some of our -- he sat on our
16 advisory boards for a number of years and his new
17 novel Space is a very interesting discussion of the
18 program. And, he has appeared for us in the Congress
19 a number of times -- said there are moments in
20 history when challenges occur of such compelling nature
21 that to miss them is to miss the whole meaning of an
22 epoch.

23 Space he said, is such a challenge. And, I
24 believe that. Indeed the shuttle operation --
25 presents us with a range of opportunities staggering

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1 in its breadth and depth. They include, we believe,
2 going on from the shuttle and building that permanent
3 presence in space, the space station which enable us
4 to continue the next step of scientific research
5 eventually perhaps to return to the moon and establish
6 a colony. And, finally to realize Von Braun's great
7 dream of a man landing on Mars.

8 This magnificent era is just beginning.
9 Our responsibility is to ensure that we take what we
10 have and to move ahead to expand our knowledge, to
11 manage and preserve our planet, to improve the
12 quality of life and to accept the forthright challenge
13 that we have ahead of us.

14 Space is a logical extension of our
15 environment. It's a place for mankind to live, to work,
16 and to expand our horizons.

17 Let me conclude with a small couplet from
18 T. S. Elliott, Thomas Sterns Elliott wrote a poem a
19 number of years ago and he concluded with a quatrain
20 which goes: We shall never cease our exploration and
21 the end of all of our exploring will be to arrive at
22 where we started and to know the place for the first
23 time. And, I believe that says it all.

24 Thank you very much.

25 (Applause)

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1 **MSack** **JOHNSON:-** Thank you James M. Beggs,
2 **Administrator, National Aeronautics and Space**
3 **Administration** development, both public and
4 It was about **The question and answer** portion of our
5 program will be presided over by Nelson Weller, Vice
6 **President of the Commonwealth Club of California.**

7 **MR. WELLER:** Thank you, Judy Johnson, Acting
8 **Quarterly Chair of the Commonwealth Club of California,**
9 **James Beggs, Administrator, National Aeronautics and**
10 **Space Administration.** And, I would -- I
11 argue that **If you will return we'll proceed with our**
12 **question and answer session.**

13 **MR. WELLER:** The first question is please
14 **comment on the current status of research and develop-**
15 **ment in the United States.**

16 **(Laughter)**
17 competitors, France, Germany and Japan.

18 **MR. BEGGS:** The problem that we face, of
19 course, is one I mentioned in my talk and that is
20 that we are falling behind and we have been surpassed
21 in a number of areas by our foreign competitors. I
22 like to highlight the problem by quoting some statistics
23 in -- if you go back to the 1960's -- these are not the
24 exact numbers but you can look up the exact numbers if
25 you want them. But, they are very close to the right
number.

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1 Back in 19 -- in the mid 60's we were spending
2 about 3 percent of our gross national product on
3 research and development, both public and private.
4 It was about 60 percent public and about 40 percent
5 private in those days. And, in absolute terms it
6 was about \$17 billion.

7 In 1981, which was the last year for which
8 I have statistics -- we spent about \$47 billion --
9 which is a little over 1 and a half percent of our
10 gross national product. And, I would -- I would
11 argue that that's a fair comparison, fair measure because
12 it is that percentage of the GNP that you invest in
13 the future that provides the growth of the GNP.

14 In the mid 60's I picked out three countries
15 which are our major, the major international
16 competitors, France, Germany and Japan. And, I was
17 able to get -- it's not easy to get statistics since
18 -- they, because they don't keep their accounts quite
19 as clean as we do in the -- research and development
20 area. But, I looked at 1964 -- they spent about \$6
21 billion in the aggregate in that year which as you
22 can see was about 1/3 of what we were spending.

23 In 1981 they spent \$46 billion -- so they
24 have, they are spending about the same as we are
25 spending. And, it probably is more in the -- in the

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commercial side because of research and development in our account goes for defense. And, while it is true that our defense R & D has application in the commercial world, a lot of it does not.

So, they are probably spending more in the -- industrial, commercial segment of research and development. And, what that says is -- that they are going to move by us very quickly, not today, but five or ten years from now because that research and development will pay off in seven or eight to ten years from today.

So we must look to our laurels and we must find a way to increase the expenditure for new technology or we will find that increasingly we are falling behind in industry after industry -- and while that may not seem terribly important -- to a lot of people, I often hear the argument well, what difference does it make, we have our own domestic economy.

If we are not competitive internationally after all we only export in the order of 6 to 7 percent of our GNP. But, if you look at another statistic, I'm just full of statistics, you look at another statistic, in the decline of the GNP -- that just took place in this recessionary period -- 40 percent of it, 40 percent of the decline -- was --

1 was due to -- the export segment of the GNP. So the
2 export segment is extremely important. And, my view
3 is that -- we ought to be spending -- try to get that
4 expenditure on GNP back up to that -- 3 percent rate.

5 Now, we've done a lot of things in the
6 recent, you know our recent history, I think the
7 current revision of the forms and the facts --
8 structure will help -- they will help the private
9 sector spend more. But, we're also going to
10 invest, have to invest more in the long range research.
11 And, it's very difficult for a profit making organi-
12 zation when you're looking at double digit rates --
13 I've sat in several board rooms and had to make --
14 assist in making decisions on expenditures in this
15 area when you look at discount rates over and above
16 10 percent or even above 8 -- you know 8 percent of --
17 is a double every nine years.

18 And, 10 percent is doubled every seven. So
19 it's very difficult to invest in something that is
20 not going to pay off for 10 years. So, we've got to
21 find a way to make the investment a longer range
22 research if we are going to remain competitive.

23 MR. WELLER: How does the President's
24 statement on space policy featuring military concerns
25 effect NASA's program and goals?

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1 MR. BEGGS: Well, he -- this Administration
2 favors a civil program. That space policy statement if
3 you read it carefully has a number of very encouraging
4 words for the civil side of space. It renews our
5 commitment to the program which is basically in four
6 parts. One is the man program, second is the space
7 science and exploration program, the third is the
8 applications program or finding ways to apply our
9 research to do -- to do good things economically and
10 otherwise for people on earth. And, the fourth, of
11 course, is the aeronautics program which has been a
12 part of this since the NASA.

13 And, he renewed that commitment very
14 forcefully in the July 4th statement. He also said
15 that it was important that we use the resources to
16 enhance our national security. And, I believe, that
17 very, very sincerely. The NASA -- if you go back and
18 read the Space Act of 1958 you will find that a part
19 of that Space Act says that NASA has the responsibility
20 of passing off, passing over to the Department of
21 Defense any research or technology that we develop
22 which has military application.

23 And, NASA is responsible for doing that and
24 we have done that through our history. And, it has
25 enhanced our national security -- the military uses

1 NASA technology in their communications activities.
2 navigation, there is, there are world wide navigation
3 systems which are very accurately navigated military
4 vehicles from here to there. And, they are also used
5 in civil navigation.
6 that with Meteorology and of course a very important
7 activitys in surveillance. And, I believe that --
8 that needs to continue. What we will do with them on
9 shuttle is to treat them just like any other valued
10 customer. They will use about 25 percent of the
11 capacity of the shuttle for the coming five years.
12 They are paying their way -- about the first thing I
13 did when I got back from Washington was to look at the
14 secret the cost and I went over and -- I can't raise the
15 price for the commercial carriers because I have
16 binding contracts with my commercial customers. But,
17 I figured I could break the contract with the DOD and
18 today, I raised their price 33 percent.
19 see our ac They swallowed hard, but they took it. And,
20 I would suggest their paying their way and we want
21 them on the shuttle. We would -- this is like any other
22 commercial airplane, it is very sensitive from an
23 economic point of view to flight rate and load factor
24 and we want to keep it loaded as much as we can. We're
25 going to fly it as many times a year as we can.

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1 So we want the military customer and we're
2 happy to have him, we will treat him like any other
3 customer, and if he wants his equipment and cargo
4 protected from a security point of view we will
5 cooperate in doing that and incidentally I will do
6 that with any commercial customer as well. If he does
7 not -- as long as his satellite is legitimate, if he
8 doesn't want it exposed to the public, it won't be
9 exposed to the public.

10 That does not mean that the program won't
11 remain open. This program many years ago -- two wise
12 men Tiger Teague and Jim Webb -- Tiger who headed the
13 committee in the house and Jim, of course, who was the
14 second administrator decided this program should be
15 open. And, it was a very wise decision and it's paid
16 us enormous dividends. And, as long as I occupy this
17 chair the program will remain open, we will be able to
18 continue to see the launches and you will be able to
19 see our activities in space save the very few pay loads
20 which require security or protection.

21 MR. WELLER: How much of a set back was the
22 scrubbing of the EVA?

23 MR. BEGGS: Well, we don't -- the first EVA
24 for real -- that is for doing something real up in
25 space is a repair mission which we intend to conduct on

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1 We're always disappointed with ourselves when
2 something crops up that we didn't anticipate. But all
3 of those of you who are engineers and have worked in
4 scientific disciplines know that there are many
5 surprises the first time you try soomething for real.

6 MR. WELLER: Should private enterprise take
7 over the commercial aspects of space activity?

8 MR. BEGGS: Well, as a matter of fact they
9 are doing quite a lot these days. The -- we have great
10 interest in a number of venture capital organizations
11 who want to get into the launch services business. And,
12 we're helping them, we're the one that was launched
13 down at Texas here recently was a rocket that we had
14 provided to them so that they could test out their
15 system.

16 And, we're trying to provide as much help
17 and assistance as we can to the private sector to get
18 into the launch service because we think not only is
19 that -- will that broaden the market but it will --
20 I think, provide some capability that we probably
21 can use later on.

22 Eventually I hope the shuttle itself will
23 be taken over by a -- by the firm, either quasi public
24 like the COMSAT -- arch type or possibly even --
25 completely private, financed privately. As a matter

1 of fact, like most transportation investments we have
2 made in this country, once that time comes we'll sell
3 the system to whomever wants to operate it for like
4 \$1. and they can be responsible for operating it
5 thereafter and go out on market.

6 It's difficult for a government organization
7 to market aggressively and that's a problem we're
8 running into. This is an international market. Every
9 country in the world wants their own communication and
10 meteorological and information satellite these days.
11 So, we must sell aggressively internationally because
12 our competitors the French and the Japanese -- are out
13 there beating the bushes.

14 As you know, Government budgets are
15 restricted in travel. I can't advertise, I can't
16 entertain, I cannot -- in fact, even suggest to any
17 of my customers -- that -- I could bring him over to
18 witness something or do something at my expense. In
19 short, it's a more difficult situation when you're
20 selling out of the Government than it is when you're
21 private or quasi-private as the French -- space is.
22 Their company is, a private company and they have
23 complete freedom and if you picked up Fortune here a
24 few months ago you saw a ten page spread, advertising
25 spread for Aerion, which is their launch vehicle.

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1 MR. WELLER: Do you anticipate people living
2 something in the class of the Saturn rocket and they
3 permanently in space -- how soon? they are

4 MR. BEGGS: Right now the Soviets are living
5 permanently in space and they have been living more or
6 less permanently in space for the last about three
7 years. The Soviets have been occupying space stations
8 called Salut through several generations. About 60
9 percent of the time and they deorbited the sixth,
10 Salut 6 this past summer, dumped it in the Indian
11 Ocean and put up the seventh version and they have
12 been occupying the seventh version with the same crew
13 ever since. That crew just set a world's endurance
14 record of 186 days, I think, something like that --
15 a little different from theirs but I think that's the
16 just the day before the shuttle landed.
17 next step.

18 And, they are still occupying it, I think
19 As a matter of fact, the shuttle system did
20 they are going to go for a -- a 200 day or longer
21 have a space station attached to it. It's initial
22 record. So, they have in effect, a permanent presence
23 concept when we took the budget. It's Fletcher
24 in their living out there. They are resupplying on a
25 was then the administrator -- he had the budget over
26 frequent basis and they are doing a lot of work. They
27 to Cap. Weinberger and they took it. Then President
28 are doing material processing work, they are doing
29 Nixon -- he said do it for half. If allowed to
30 various kinds of -- as they say earth resources work
31 only to do the shuttle but we also in mind
32 which is another term for surveillance.
33 bringing along the station later

34 (Laughter)

35 MR. WELLER: We have to go on one more
36 And, they have announced their intention,
37 they have under development a very large rocket
38 adjourned.

1 something in the class of the Saturn 5 rocket and they
2 have announced that in about three years they are
3 going to put up an even bigger one -- that rocket will
4 probably carry 250 to 300,000 pounds of the low earth
5 orbit.

6 So you can expect that they will be up there
7 with a permanent station. It's our intention to move
8 out in the next few years on a -- on a space station
9 not exactly like the one they are doing because we
10 think we can do it better by reason of the fact that
11 we have the shuttle and we can use the shuttle as our
12 means of going back and forth. So our system will be
13 a little different from theirs but we think that's the
14 next step.

15 As a matter of fact, the shuttle system did
16 have a space station attached to it in it's initial
17 concept when we took the budget, when Jim Fletcher
18 was then the administrator -- he took the budget over
19 to Cap. Weinberger and they took it to then President
20 Nixon -- he said do it for half. And, half allowed us
21 only to do the shuttle but we always had in mind
22 bringing along the station later on.

23 MR. WELLER: We have time for but one more
24 question. When answered this meeting will stand
25 adjourned.

1 On behalf of the members of the Commonwealth
2 Club of California and their guests gathered in the
3 Holiday Inn, Park Center Plaza, San Jose, I thank you
4 Jim Beggs, Administrator, National Aeronautics and
5 Space Administration for your discussion NASA Today and
6 Tomorrow.

7 A final question -- will jalapeno peppers
8 become the standard stamp food on the future shuttle?

9 (Laughter)

10 MR. BEGGS: Golly I hope so, because I love
11 them. Thank you.

12 (Applause)

13 VOICE: Good job.

14 VOICE: You had a lot of questions and they
15 all were on basically the same subjects.

16 VOICE: Very good, Jim.

17 MR. BEGGS: Thank you.

18 (Simultaneous conversation)'

19 (Whereupon, the meeting was concluded.)

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